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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,693	08/05/2003	Joseph F. Skovira	POU903100US1	7585

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EXAMINER

ZHE, MENG YAO

ART UNIT	PAPER NUMBER
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2109

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/634,693

Applicant(s)

SKOVIRA, JOSEPH F.

Examiner

MengYao Zhe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :8/05/2003, 8/18/2006. 9/29/2006, 10/14/2003.

DETAILED ACTION

This is the initial Office Action based on the 10/634693 application filed on August 5, 2003.

Information Disclosure Statement

The information disclosure statement filed on August 5, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein that has been crossed out has not been considered.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims(s) **8 to 14** are directed to a system for workload balancing.

The above claims lack necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a

composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

Descriptive material can be characterized as either "functional descriptive material" or "non-functional descriptive material." Both types of "descriptive material" are non-statutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1, 8 and 15 are rejected under 35 U.S.C 102(b) as being anticipated by Xu, Patent No. 6,418,462 B1.

As per claim 1, Xu teaches method of balancing workload of a computing environment, said method comprising:

obtaining information regarding one or more systems (*Column 1, lines 20 to 25; column 3, lines 50 to 55; The sever is responsible for dispatching tasks, and to do this, it needs to obtain information about the idle CPU time of each client in order to properly assign the tasks to each client.*)

of a plurality of systems of a grid computing environment (*column 6, lines 66 to 68; The grid computing environment is the equivalent of a heterogeneous platform.*);

and balancing workload of at least two systems of the plurality of systems using at least a portion of the obtained information. (*column 3, lines 50 to 65; The server breaks a problem into many independent parts and assigns them across different systems.*)

As per **claim 8**, it is a system that contains all the instructions capable of performing the method of claim 1. Since claim 1 is rejected, claim 8 is rejected as well.

As per **claim 15**, it is a system that contains all the instructions capable of performing the method of claim 1. Since claim 1 is rejected, claim 15 is rejected as well.

Claims 1 to 6, 8 to 13, and 15 to 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Guo et al, Publication No. 2005/0071843 (hereafter Guo).

As per **claim 1**, Guo teaches method of balancing workload of a computing environment, said method comprising:

obtaining information regarding one or more systems (*Figure 6: the equivalent of a topology monitoring unit 120 for monitoring a status of all the resources*)

of a plurality of systems of a grid computing environment (*Figure 4 or any type of topology; the NUMA is a virtual machine that is comprised of many SMP nodes that can reside in the same host or separate hosts, which is the equivalent of a grid computing environment, Paragraph 3.*);

and balancing workload of at least two systems of the plurality of systems using at least a portion of the obtained information. (*Paragraph 59: the information is contained in the information signal, which can be used to balance workloads of the entire system.*)

As per **claim 2**, Guo teaches

obtaining comprises obtaining by a manager daemon of the grid computing environment the information from one or more schedulers associated with the one or more systems. (*Figure 6 and Paragraphs 58 to 60, the Topology*

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Daemon of each node passes information or the schedulers to the External scheduler, from which the standard scheduler can obtain detailed information from to balance the workload.)

As per **claim 3**, Guo teaches:

information is obtained from at least two schedulers, and wherein one scheduler of the at least two schedulers is a different scheduler from at least one other scheduler of the at least two schedulers. *(As seen in Figure 6. There are two nodes displayed that can offer their own scheduler to the external scheduler.)*

As per **claim 4**, Guo teaches

wherein the information comprises information regarding workload of said one or more systems. *(Paragraph 61: the ls signal is an indicator of the resources available for each of the systems, which the equivalent of providing information of the workload.)*

As per **claim 5**, Guo teaches

wherein the information for a system includes at least one of a number of free nodes of the system *(paragraph 99),*
job queue of zero or more waiting jobs *(last three lines of Paragraph 64),*

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and one or more scheduler specific variable settings for a current state of the system job mix. *(Paragraph 63: the topology monitoring unit provides the amount of in-use resources at a current state of the system job mix, which is interpreted to be a specific variable setting.)*

As per **claim 6**, Guo teaches

determining which system of said at least two systems a job is to be assigned; and assigning the job to the determined system. *(Paragraph 81)*

As per **claim 8**, it is a system that contains all the instructions capable of performing the method of claim 1. Since claim 1 is rejected, claim 8 is rejected as well.

As per **claim 9**, it is a system that contains all the instructions capable of performing the method of claim 2. Since claim 2 is rejected, claim 9 is rejected as well.

As per **claim 10**, it is a system that contains all the instructions capable of performing the method of claim 3. Since claim 3 is rejected, claim 10 is rejected as well.

As per **claim 11**, it is a system that contains all the instructions capable of performing the method of claim 4. Since claim 4 is rejected, claim 11 is rejected as well.

As per **claim 12**, it is a system that contains all the instructions capable of performing the method of claim 5. Since claim 5 is rejected, claim 12 is rejected as well.

As per **claim 13**, it is a system that contains all the instructions capable of performing the method of claim 6. Since claim 6 is rejected, claim 13 is rejected as well.

As per **claim 15**, it is a system that contains all the instructions capable of performing the method of claim 1. Since claim 1 is rejected, claim 15 is rejected as well.

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As per **claim 16**, it is a system that contains all the instructions capable of performing the method of claim 2. Since claim 2 is rejected, claim 16 is rejected as well.

As per **claim 17**, it is a system that contains all the instructions capable of performing the method of claim 4. Since claim 4 is rejected, claim 17 is rejected as well.

As per **claim 18**, it is a system that contains all the instructions capable of performing the method of claim 5. Since claim 5 is rejected, claim 18 is rejected as well.

As per **claim 19**, it is a system that contains all the instructions capable of performing the method of claim 6. Since claim 6 is rejected, claim 19 is rejected as well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 7, 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guo et al. Publication No. 2005/0071843 (hereafter Guo) in view of Suzuki et al. Patent No. 4,394,730 (hereafter Suzuki).

As per **claim 7**, Guo teaches all of claim 1 (please see claim rejection for 1)

Guo does not teach

wherein the balancing includes: removing a job from one system of the at least two systems; and assigning the job to another system of the at least two systems.

However, Suzuki teaches

removing a job from one system of the at least two systems; and assigning the job to another system of the at least two systems (*Column 1, lines 65 to 68: Suzuki discloses a method for job swapping among the processor units*) for the purpose of allowing the system with the best available resources to execute the incoming job.

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It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of Guo with

removing a job from one system of the at least two systems; and assigning the job to another system of the at least two systems,

as taught by Suzuki, because it allows for the system with the best available resources to execute the incoming job.

As per **claim 14**, it is a system that contains all the instructions capable of performing the method of claim 7. Since claim 7 is rejected, claim 14 is rejected as well.

As per **claim 20**, it is a system that contains all the instructions capable of performing the method of claim 7. Since claim 7 is rejected, claim 20 is rejected as well.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-272-6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on 571-272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


JOSEPH DEL SOLE
SUPERVISORY PATENT EXAMINER

3/1/07